

WHAT IS CLAIMED IS:

1. A method for cleaning semiconductor substrates by using a chamber including a cleaning room in which the substrates are cleaned
5 and a drying room in which the substrates are dried, the method comprising the steps of:

disposing the substrates in the cleaning room;

supplying a cleaning solution to the cleaning room to clean the substrates;

10 moving a supporter, in which the substrates are placed, to the drying room;

moving a separation plate, in which an exhaust path is formed, between the cleaning room and the drying room to separate the drying room from the cleaning room; and

15 supplying a drying fluid to the drying room to dry the substrates.

2. The method of claim 1, wherein the step of drying the substrates comprises the steps of:

20 draining the cleaning solution filling the cleaning room to the outside to decompress the inside of the drying room; and

exhausting the drying fluid supplied to the drying room from the drying room through the exhaust path formed in the separation plate.

3. The method of claim 2, wherein the step of drying the substrates further comprises a step of exhausting the drying fluid flowing into the cleaning room through an exhaust port formed at the sidewall of the cleaning room while the cleaning solution is drained through a drainpipe of the cleaning room.

4. The method of claim 3, wherein the step of drying the substrates further comprises the steps of:

closing the exhaust port when the cleaning solution is completely drained from the cleaning room; and

exhausting the drying fluid flowing into the cleaning room through the drainpipe of the cleaning room.

5. The method of claim 4, wherein the drainpipe is connected to the bottom of the cleaning room, and the drain of the cleaning solution from the cleaning room is achieved by gravity.

6. The method of claim 1, wherein the step of drying the substrates comprises the steps of:

supplying alcohol vapor onto the substrate; and

supplying a heated dry gas onto the substrate.

7. The method of claim 6, wherein the alcohol vapor is isopropyl alcohol, and the dry gas is nitrogen gas.

8. An apparatus for cleaning semiconductor substrates,
5 comprising:

a chamber having a cleaning room in which the semiconductor substrates are cleaned and a drying room, disposed over the cleaning room, in which the semiconductor substrates are dried;

a supporter disposed in the chamber that supports the
10 semiconductor substrates;

a supply pipe installed at an upper portion of the drying room that supplies a drying fluid onto the substrate; and

a separation plate which is movable to separate the cleaning room and the drying room or to place the cleaning room and the drying room in communication with one another, an exhaust path of the drying fluid being formed in the separation plate, wherein, as cleaning solution filling the cleaning room is drained to the outside, the inside of the drying room is decompressed and the drying fluid supplied to the drying room flows from the drying room to the cleaning room through the
15 exhaust path of the separation plate.
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9. The apparatus of claim 8, wherein the supply pipe comprises:

a first supply pipe for supplying alcohol vapor into the drying room; and

5 a second supply pipe for supplying a heated dry gas into the drying room.

10. The apparatus of claim 9, further comprising a cleaning solution supply pipe disposed in the cleaning room that injects the
10 cleaning solution into the cleaning room,

wherein the cleaning room further comprises:

an inner bath where the supporter is disposed; and

an outer bath disposed to surround the upper outer periphery of the inner bath,

15 wherein the cleaning solution overflowing from the inner bath flows into the outer bath, and a drain port is formed at the bottom of the outer bath.

11. The apparatus of claim 10, wherein an exhaust port is
20 formed at one side of the outer bath, and the drying fluid flowing into the cleaning room along the exhaust path of the separation plate is exhausted to the outside through the exhaust port.

12. The apparatus of claim 10, wherein the separation plate further comprises a separation plate moving part having a connecting rod fixedly connected to the separation plate and a driving part for horizontally moving the connecting rod.

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13. The apparatus of claim 8, wherein the exhaust path comprises at least one hole or slit formed in the separation plate.

14. The apparatus of claim 13, wherein the at least one hole or slit comprises a plurality of holes and slits, and the plurality of holes or slits are formed in the separation plate, and sizes of the holes or widths of the slits differ according to their positions.

15. The apparatus of claim 13, wherein the at least one hole or slit comprises a plurality of holes or slits, and the plurality of holes or slits are formed in at least one row at the central portion of the separation plate.

16. The apparatus of claim 15, wherein spaces between adjacent holes differ according to their forming positions.

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17. The apparatus of claim 13, wherein the semiconductor substrates are placed in a row, and the row direction is vertical to processing surfaces of the semiconductor substrates.

5 18. An apparatus for cleaning semiconductor substrates, comprising:

a chamber having a drying room in which the semiconductor substrates are dried;

a supply pipe installed in the drying room that supplies drying
10 fluid onto the semiconductor substrates; and

a separation plate constituting a bottom of the drying room,
wherein an exhaust path is formed at a central portion of the separation plate, and

wherein the drying fluids supplied onto the substrate are
15 exhausted from the drying room through the exhaust path.

19. The apparatus of claim 18, wherein the chamber further comprises a cleaning room, disposed below the drying room and separated from the drying room by the separation plate, in which the
20 substrate is cleaned, and the separation plate is movably disposed.

20. An apparatus for cleaning semiconductor substrates,
comprising:

a chamber comprising:

a cleaning room in which the semiconductor substrates are
5 cleaned; and

a drying room, disposed over the cleaning room, in which
the semiconductor substrates are dried; and

a separation plate that is movable between an open position in
which the cleaning room is in communication with the drying room and a
10 closed position in which the cleaning room is separated from the drying
room.

21. The apparatus of claim 20, further comprising:

a supporter disposed in the chamber that supports the
15 semiconductor substrates.

22. The apparatus of claim 21, further comprising:

a supply pipe installed in the drying room that supplies a drying
fluid onto the semiconductor substrates,

20 wherein an exhaust path of the drying fluid is formed in the
separation plate, and

as cleaning solution filling the cleaning room is drained to the
outside, the inside of the drying room is decompressed and the drying

fluid supplied to the drying room flows from the drying room to the cleaning room through the exhaust path of the separation plate.

23. The apparatus of claim 20, wherein the separation plate
5 further comprises a separation plate moving part having a connecting rod
fixedly connected to the separation plate and a driving part for
horizontally moving the connecting rod.

24. The apparatus of claim 22, wherein the supply pipe
10 comprises:

a first supply pipe for supplying alcohol vapor into the drying
room; and

a second supply pipe for supplying a heated dry gas into the
drying room.

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25. The apparatus of claim 22, further comprising a cleaning
solution supply pipe disposed in the cleaning room that injects the
cleaning solution into the cleaning room,

wherein the cleaning room further comprises:

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an inner bath where the supporter is disposed; and

an outer bath disposed to surround the upper outer
periphery of the inner bath,

wherein the cleaning solution overflowing from the inner bath flows into the outer bath, and a drain port is formed at the bottom of the outer bath.

5 26. The apparatus of claim 25, wherein an exhaust port is formed at one side of the outer bath, and the drying fluid flowing into the cleaning room along the exhaust path of the separation plate is exhausted to the outside through the exhaust port.